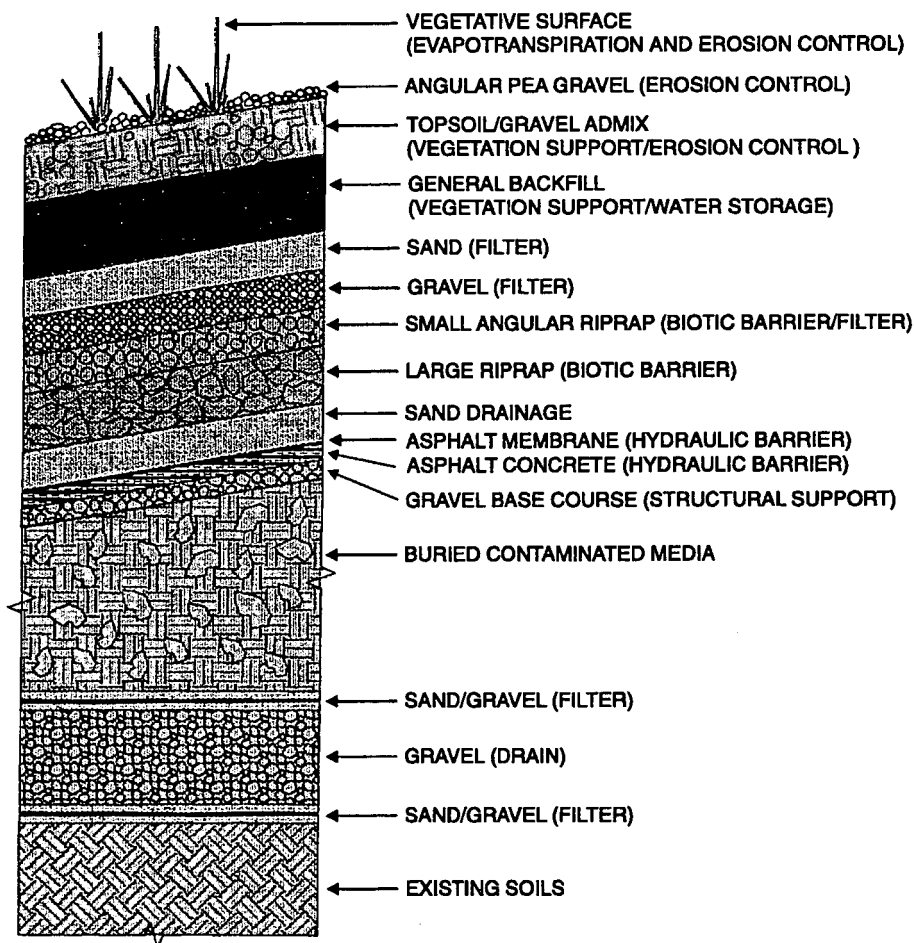


# ***OU4 Interim Measure/Interim Remedial Action Environmental Assessment Decision Document***

## ***Part IV - Recommended Interim Measure/Interim Remedial Action Alternative***

### ***Summary***



### **Part IV Summary**

Part IV of the IM/IRA-EA Decision Document is entitled Recommended IM/IRA Alternative. Part IV describes the conceptual design of the proposed general response action recommended in Part III of the IM/IRA-EA DD to close/remediate OU4 and IHSS 176 at the Rocky Flats Environmental Technology Site (RFETS). Part IV also considers the impacts that the proposed IM/IRA will have on human health and the environment. The DOE proposes to consolidate the contaminated soils, liners, sludge, pondcrete, and debris beneath an engineered cover which is designed for a performance period of 1000 years. The engineered cover will greatly reduce the

amount of precipitation that infiltrates into the consolidated materials. A subsurface drain will be installed beneath the consolidated materials to prevent ground water from contacting the materials in the event that the ground water level rises in the future due to a climate change. Closure plans for Buildings 788 and 964 are also presented within Part IV. Part IV describes the project activities that will be performed as part of the remedial action and explains the types, present location, and forms of waste that will be consolidated beneath the engineered cover.

The document presents the functional design requirements and specific design criteria that were developed to meet established goals and objectives. The engineered cover meets or exceeds all the design requirements presented in this section. Waste acceptance criteria are also presented for the sludge and pondcrete that will be processed to a form that will be protective of human health and the environment for consolidation beneath the engineered cover.

The conceptual design section of the document explains the function and the rationale for the selection of each layer of the engineered cover. The engineered cover will be constructed from natural materials with long-term durability. The layers used to construct the final engineered cover include:

- Vegetation,
- Pea Gravel,
- Topsoil,
- General backfill,
- Sand,
- Gravel,
- Angular riprap
- Sand
- Asphalt membrane
- Asphalt concrete, and
- Gravel base course.

The IM/IRA, through the use of an engineered cover, is designed to be protective of human health and the environment for a 1,000-year period in conformance with the Colorado Hazardous Waste Landfill Siting Act (6CCR 1007-2, Part 2). The components of the engineered cover are based on research that has been performed at the DOE Hanford Reservation and at the DOE Los Alamos National Laboratory. The design uses the natural process of evaporation and transpiration to remove infiltrating precipitation from the system. A RCRA compliant low permeability layer will be constructed from an asphalt membrane applied as a liquid over a layer of asphaltic concrete. Part IV explains the function of each layer comprising the engineered cover.

A subsurface drainage layer will be installed at the elevation of the mean seasonal high water table elevation to prevent the potentially rising groundwater from contacting contaminated materials. The subsurface drainage layer will act as a mitigative measure in the event that the water table elevation rises above the mean seasonal high water table elevation. Design details of the subsurface drainage system and the benefits it will bring to the design are presented.

An explanation of the HELP model which was employed to predict the amount of precipitation infiltration that would migrate through the final engineered cover is presented. The modeling results indicate that very small amounts of infiltration should pass through the engineered cover, even with a hypothetical significant increase in the normal monthly precipitation.

Buildings 788 and 964 will require decontamination and demolition as part of imple-

menting the IM/IRA. The document summarizes regulatory compliance issues, closure planning sequence and the engineering approach required for the demolition of these structures. It is anticipated that the closure, demolition, and disposition of the components of these structures will use commonly practiced engineering and dismantling techniques that will not pose unusual technical difficulties. Utilities and electrical services in the vicinity of the Ponds will also require removal, rerouting, or closure in place.

A description of the processes to stabilize sludge and pondcrete is presented to meet the waste acceptance criteria for disposition of these materials beneath the engineered cover. These Solar Evaporation Pond wastes will be stabilized by processing with a mixture of lime and cement to absorb free moisture and destroy any pathogens or gas-producing micro-organisms.

Several sections of the document summarize construction of the engineered cover. An outline of the construction specifications that will be prepared as part of the final design package are presented. The preliminary schedule and budget for the engineered cover construction are outlined in this section. The sequence for construction activities, the order for completion of each phase of work, and the quality assurance/quality control plan is summarized. The health risks from suspended particulates and dust associated with construction activities were evaluated and are expected to be protective of human health and the environment. Air monitoring will be performed during construction to ensure that the construction activities are con-

ducted by methods that are protective of human health and the environment.

The impact to groundwater quality was evaluated based on leaching of contaminants from the consolidated contaminated materials via precipitation infiltration through the engineered cover. The VLEACH computer code was used in this analysis. Based on the modeling results, groundwater comparison criteria are not expected to be exceeded at the point of compliance during 1000 year period of performance.

The presence of three small wetlands totalling 0.12 acres within OU4 has been discovered. These wetlands may be impacted by the proposed IM/IRA. A wetlands bank in Bear Creek State Park will be implemented as a mitigative measure.

The commitment of irreversible and irretrievable resources were considered within the document, and the proposed IM/IRA will not result in substantial loss of valuable resources. Transportation impacts and off-site impacts, will be minimal and no impacts will be made to archeological or historical resources.

Regulatory requirements of the IM/IRA are presented in Part IV. The existing RCRA Part B permit must be modified, and an amendment to the RFETS NPDES storm water permit may be required. A request for a Corrective Actions Management Unit (CAMU) is presented to allow the consolidation of contaminated materials beneath the engineered cover. In addition a Temporary Unit (TU) is requested for the sludge and pondcrete processing equipment.

